

DETERMINANTS OF LENDING INTEREST RATE OF NEPALESE COMMERCIAL BANKS

A Dissertation submitted to office of the dean, faculty of management in partial
fulfillment of the requirements for the Master's Degree

by

Goma Kunwar

T.U. Regd. No.: 7-3-39-1283-2017

Exam Symbol No.: 5564/018

College Roll No.: 152/018

Shanker Dev Campus

Kathmandu, Nepal

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “Determinants of Lending Interest Rate of Nepalese Commercial Banks”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirement for any academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all sources and literature used are cited in the reference section of the dissertation.

Goma Kunwar

Date:

REPORT OF RESEARCH COMMITTEE

Ms. Goma Kunwar has defended research proposal entitled “Determinants of Lending Interest Rate of Nepalese Commercial Banks” successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisors Dr. Prakash Kumar Gautam and submit the dissertation for evaluation and viva voce examination.

Dr. Prakash Kumar Gautam

Dissertation Supervisor

Signature:

Dissertation Proposal Defended Date:

.....

Dissertation Submitted Date:

.....

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Head of Research committee

Signature:

Dissertation Viva Voce Date:

.....

APPROVAL SHEET

We have examined the dissertation entitled “Determinants of Lending Interest Rate of Nepalese Commercial Banks” presented by Ms. Goma Kunwar for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

.....
Dr. Prakash Kumar Gautam
Dissertation Supervisor

.....
Internal Examiner

.....
Internal Expert

.....
External Expert

.....
Asso. Prof. Dr. Sajeeb Kumar Shrestha
Head, Research Department

.....
Asso. Prof. Dr. Krishna Prasad Acharya
Campus Chief

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ABBREVIATIONS

| | | |
|-------|---|---------------------------------|
| CB | : | Cash and Bank Balance |
| CRM | : | Credit Risk Management |
| CRR | : | Cash Reserve Ratio |
| CV | : | Coefficient of Variation |
| DIR | : | Deposit Interest Rate |
| EBL | : | Everest Bank Limited |
| HBL | : | Himalayan Bank Limited |
| LA | : | Loan and Advance |
| LIQ | : | Liquidity Ratio |
| LIR | : | Lending Interest Rate |
| Ltd. | : | Limited |
| NABIL | : | Nabil Bank Limited |
| NMB | : | NMB Bank Limited |
| NRB | : | Nepal Rastra Bank |
| NSBL | : | Nepal SBI Bank Limited |
| OD | : | Overdraft |
| OER | : | Operating Expenses Ratio |
| ROA | : | Return on Assets |
| SCBNL | : | Standard Chartered Bank Limited |
| SD | : | Standard Deviation |
| Size | : | Logarithm of Total Assets |
| TU | : | Tribhuvan University |
| VIF | : | Variance Inflation Factor |

ABSTRACT

The study primarily examined the determinants of lending interest rates in Nepalese commercial banks. This study focuses on how lending interest rate is affected by deposit interest rate, lending interest rate, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate. Six sample bank's ten-year data from the years 2012/13 to 2021/22 are used in this study. With the aid of descriptive and causal research designs, data analysis is carried out. The SPSS software used for data analysis when the obtained data are provided in an orderly format. It was found that lending interest rate has positive relation with bank size, deposit interest rate, operating expenses ratio, return on assets and GDP growth rate but liquidity and inflation rate have negative relation with lending interest rate of the banks. The increase in the deposit interest rate increases the lending interest rate for the bank, since the bank transfers deposit interest rate for borrowers. Liquidity has positive effect on lending interest rate, concluding that increased liquidity shows the better short-term financial stability of the banks and banks can increase the interest rate with this strength. There is positive effect of return on assets on lending interest rate, there is positive effect of operating expenses ratio on lending interest rate and there is negative effect of inflation rate on lending interest rate. Increasing the bank's profitability enables the bank to provide credit facilities at low interest rates, as it can compensate for this decline in lending rates through the expansion of lending. The increase in inflation contributes to the increase of the bank's lending interest rate, as the bank seeks to maintain the same levels of real interest it charges by transferring the inflation rate for borrowers. The GDP growth rate has negative effect on lending interest rate of the banks, concluding that the growth in banking sector interest rate does not rely on economic growth of the country.

Keywords: Lending Interest Rate, Bank Size, Deposit Interest Rate, Liquidity Ratio, Operating Expenses Ratio, Return on Assets, Inflation Rate and GDP Growth Rate

CHAPTER- I

INTRODUCTION

1.1 Background of the Study

One of the economic indicators that is most frequently monitored is interest rates (Bhattarai, 2015). The news media covers these changes virtually every day since they have a significant impact on our daily lives and the state of the economy. They have an impact on individual decisions including whether to save or consume, whether to purchase a home, buy bonds, or deposit money into a savings account. Interest rates have an impact on personal and company economic decisions as well, such as whether or not to save money in a bank or invest in new factory equipment (Thapa, 2013).

Understanding the precise meaning of the term "interest rates" is necessary before studying the elements that influence them. According to this study, the yield to maturity concept is the most reliable significant indicator of interest rates (Shrestha & Bhandari, 2004). The amount of interest owed each period expressed as a percentage of the amount borrowed, deposited, or lent is known as the interest rate. The principal amount, interest rate, frequency of compounding, and duration of loan, deposit, or borrowing all affect the total interest on the amount borrowed or lent. It can be defined as the percentage of the loan amount that the lender charges the borrower in interest; this percentage is often reported annually. It's the interest rate a bank or other lender charges on a loan, or the rate a bank gives its customers who maintain funds in an account. The interest rate for a year is known as the annual interest rate. Various interest rates are applicable for varying durations, such a day or a month, but they are often annualized (Shrestha & Bhandari, 2004).

A financial institution is defined in the fields of economics and finance as one that offers financial services to its members or clients. Serving as a financial intermediary is among the most significant financial services that a financial institution offers. A majority of financial institutions are subject to government regulation. Lending operations from finance businesses have a tendency to concentrate on metropolitan regions, much like the operations of commercial banks. These businesses have focused on raising money through fixed deposits because they are unable to accept demand or

savings deposits from the general public. Finance businesses are therefore organizations that carry out non-banking operations, such as setting up and managing various programs through which they gather funds under various arrangements. They have achieved their goals and made and distributed the monies to those who requested them. The study looks at how Nepal's policy interest rate is passed through to the market interest rate (Barro & Grossman, 2001).

Considering that the fundamental role of the banking system is to transfer money from agents with a surplus to those with a deficit, it is an essential component of every economy. Through the resolution of the information asymmetry among agents and the diversification of risks, banks are able to lower the expenses associated with the transfer of financial resources and facilitate their effective distribution across the economy. The economy's primary job is to distribute limited resources so that society can get the products and services it needs. The conversion of resources like as land, labor, capital, technology, management expertise, and information is necessary for the creation of goods and services. The most crucial of these is capital, which is referred to as the business's lifeblood for producing goods and services (Rose, 2003).

Loans carry a significant risk and have a direct impact on the profitability, solvency, and liquidity of the bank. The strength and stability of a bank, as well as the risk taken by creditors and depositors, are indicated by the quality of the bank's credit. Global bank failures and liquidity crises are primarily caused by inadequate loan portfolio management (Timsina, 2014).

A bank's lending practices are typically determined by its type, capital base, deposit base, deposit density, interest rate, exchange rate, inflation, GDP, investment portfolio, liquidity, monetary and fiscal phenomena, periodic credit guidelines from the regulatory body, and internal bank policies (Olusanya et al., 2012).

Finance Interest rates play a significant role in the lending decisions made by commercial banks. Lending rates are determined by commercial banks, which are separate legal companies. The percentage that the lender charges on the loan amount is known as the lending interest rate. Banks charge interest on the money they lend to their customers for a variety of reasons, such as profit-making, risk-reward, and value

preservation. Lending has a crucial role in promoting and igniting economic investments, which raises national revenue, employment, and productivity. When lending rates drop, business investments in real estate, machinery, equipment, new factories, and other assets are encouraged (Baumol & Blinder, 2010).

Lower deposit rates and greater lending rates are two ways that commercial banks might boost their profit margins. Because the revenue from interest income will not be sufficient to cover the cost of deposits, general expenses, and the loss of revenue from the non-performing loan portfolio, banks do not offer excessively low loan rates. However, they are unable to maintain a banking relationship with borrowers that charge high lending interest rates, hence they are unable to charge excessively high loan rates (Bhattarai, 2015).

Therefore, choosing the right loan rates typically becomes a significant problem for the banking sector. Furthermore, policymakers are concerned about the variables that affect the level of loan rates offered by commercial banks, as well as the macroeconomic and banking sectors (Brankonic, 2014). High lending rates to riskier borrowers might lead to issues with adverse selection and moral hazard (Nasrin et al., 2015). In addition, push lending rates are associated with low loan portfolio quality, minimal savings, and unpredictability in the business climate, institutional restraints, and bank profitability. As demonstrated by Zuzana and Tigran (2008) developing economies consistently exhibit higher levels of interest margins than do established economies.

Various factors, including those unique to the banking sector or industry, individual bank-specific factors, and macroeconomic ones, impact the lending interest rate of commercial banks (Bhattarai, 2015). According to the traditional idea, there are two forces that affect the rate of interest. First, there are the savings supplies, which come primarily from households, and then there is the demand for investable capital, which primarily comes from the corporate sector. Furthermore, savings, investments, the desire to hoard money, and the availability of money are the four elements that the loanable funds theory takes into account when determining the rate of interest. According to rational expectation theory, changes in interest rates are mostly caused by unforeseen information and/or shifts in economic conditions, and the current spot rate provides the best estimate of future interest rates (Irungu, 2013).

Commercial banks, which are arguably the financial institution with the quickest rate of expansion, are now seen as a catalyst for a nation's economic development since they effectively convert idle savings into profitable investments. When an organization can turn a profit over the long term, it endures. The interest earned from various funding sources and uses represents the organization's profit. This study uses two institutions as sample organizations to investigate the factors that affect Nepalese commercial banks' interest rates. One of the key factors influencing the growth of commercial banks and the financial sector overall is thought to be interest rates. This study also makes an effort to examine the techniques banks employ to determine interest rates. Since interest rates are a major concern for everyone who saves (deposits) and borrows money, the study also focuses on whether or not the theories on interest rates put out by various economists correspond in the Nepalese context. Thus, the central bank's influence over interest rates and the factors that affect commercial banks' lending interest rates are the main topics of this study.

1.2 Problems Statement

The cost of borrowing money from banks for business purposes is indicated by the lending interest rate, which makes it essential for a nation's economy to grow. The lending rate is clearly important for the growth and development of all kinds of entrepreneurial endeavors, but identifying the factors that influence the lending rate in a well-established, integrated banking industry that is subject to central bank regulation is more critical (Ali et al., 2011).

The high loan rates that commercial banks have been charging have caused policymakers to wonder a lot in recent times. The loan rate is crucial for the growth of a nation's economy since it shows how much it costs for businesses to borrow money from banks. The lending rate is clearly important for the growth and development of all kinds of entrepreneurial endeavors, but identifying the factors that influence the lending rate in a well-established, integrated banking industry that is subject to central bank regulation is more critical (Ali et al., 2016).

Bhattarai (2015) looks into the factors that affect lending interest rates demonstrated that bank size has a noteworthy and favorable impact on interest rates for commercial bank loans. According to Georgievska et al. (2010), the commercial bank

lending interest rate is significantly impacted negatively by bank size. The results of an investigation into the variables affecting lending interest rates show that the liquidity ratio has a negative impact on those rates. However, the results of this study by Ali et al. (2016) showed that there is a strong and positive association between the lending interest rate and the liquidity ratio.

Loan interest rates rise as a result of short-term rises in interest rates to deposit rates that raise the banks' cost of capital. In order to determine if changes in deposit rates cause changes in lending rates, a number of macro and bank-specific factors are used (Nasrin et al., 2015). Francis et al. (2014) state that the more the commercial banks' efficiency, the lower the ratio of operating costs to total assets suggests. Lending rates rise in response to increases in operating expenses, including transaction costs and the level of anticipated earnings.

Conversely, inflation causes money to lose value. Lending rates in the nation will rise as a result of banks raising their cost of credit in order to stay up with rising inflation. According to this adverse, banks are lending less to the private sector as a result of inflation, which is in line with the theory that banks limit credit when inflation is high enough (Baumol & Blinder, 2010).

The banking sector in Nepal is still expanding, thus it's important to make sure that efficient methods are in place to control lending interest rates. Additionally, the interest rates that commercial banks charge on loans have been a delicate and recurrent policy issue in Nepalese commercial banks. As such, an objective analysis of all the variables influencing commercial banks' lending interest rates is necessary (Bhattarai, 2015).

It is anticipated that lending interest rates and profitability will have a negative correlation. Demand for lending is strong and business profitability is strong during an economic growth, which leads to more lucrative loans, more bank capital, and an expanding credit environment where banks compete with one another by lending more money at lower interest rates (Motaze, 2022).

Thus, more empirical research in the Nepalese context is necessary in order to gain greater insight into the factors influencing lending interest rates utilizing much more

recent datasets. To the best of the researcher's knowledge, no empirical research has been done in Nepal on the factors that influence the interest rate at which a private commercial bank lends money. Instead, research in the same country has concentrated on factors such as bank performance, profitability, and lending behavior. Thus, the purpose of this article is to close the information gap by examining macroeconomic, industry-specific, and bank-specific factors that may have an impact on the lending interest rate variability of Nepalese commercial banks (Bhattarai, 2015).

Therefore, the primary goal of this study is to examine the factors that influence a bank's lending rate by analyzing financial data from Nepalese commercial banks, their annual reports, and reports released by the NRB. These factors will be categorized into two categories: internal factors specific to the bank and external macroeconomic variables. More precisely, this research aims to respond to the following queries:

- What is the trend of deposit interest rate, lending interest rate, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate in Nepalese commercial banks?
- Is there any relationship between lending interest rate and bank size, liquidity ratio, deposit interest rate, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate in Nepalese commercial banks?
- What is the impact of bank size, liquidity ratio, deposit interest rate, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate on lending interest rate in Nepalese commercial banks?

1.3 Objectives of the Study

The general objective of the study is to investigate the determinants of lending interest rates of commercial banks in Nepal.

- To examine the trend of deposit interest rate, lending interest rate, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate in Nepalese commercial banks.
- To examine the relationship between lending interest rate and bank size, liquidity ratio, deposit interest rate, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate in Nepalese commercial banks.

- To analyze the impact of bank size, liquidity ratio, deposit interest rate, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate on lending interest rate in Nepalese commercial banks.

1.4 Rationale of the Study

The cost of credit and the amount of credit that can be used to pay for the myriad of goods and services we buy every day are both determined by the financial system. All financial system actions, including playing for goods and services, saving, lending, borrowing, and investing, take place within its bounds. Which credit gets more expensive (higher interest rate) and the total amount of money that can be spent on goods and services decreases. As a result, businesses reduce their output, which raises unemployment and reduces economic growth. On the other hand, cost decreases (lower interest rates) and increased availability of loanable funds lead to a rise in overall economic spending, the creation of more jobs, and faster economic growth. Therefore, the flow of money is necessary for economic progress, and the financial system makes this possible.

In the modern world, investment is necessary in every economy, and both the public and private sectors are spending more. However, the financial crisis is affecting the private sector in the majority of developing nations, including Nepal. People's knowledge of the banking system is lacking. Financial intermediaries are insufficient to mobilize the nation's savings, and some well-established institutions are also built on the idea that a tiny portion of savings should be used for profitable ventures rather than for home improvements, upscale dining, or decorative items, among other expenses.

As a result, it is imperative to formulate some theories regarding how interest rates affect the economy. It's also critical to understand how different financial institutions are affected by interest rates and the policies of those organizations. Numerous parties, including future researchers, students, teachers, financial institutions, and general public, are thought to find this study valuable as well. Since interest rates are the only factor that binds and strongly influences commercial banks, which are the components of financial systems, the study of interest rates seems valuable in Nepal.

1.5 Limitations of the Study

Every research have its own restriction and limitation due to the proper time resource and knowledge.

- Although there were other 21 commercial banks operating in Nepal during study period, the samples cover only six commercial banks, which is a small sample to represent all company's information.
- This study is based on only secondary data and this study covered only ten years data from 2012/13 to 2021/22.
- Only determining factors of lending interest rate are analyzed as deposit interest rate, bank size, liquidity ratio, profitability ratio as ROA, operating expenses ratio and inflation rate in this study, other aspects has not been studied.
- The source of data of the study are published source only so the reliability of the data and are assumed to be correct.

CHAPTER- II

LITERATURE REVIEW

This chapter presents both empirical and theoretical data pertaining to the factors that influence bank lending interest rates. The research gap section discusses conclusions based on the related literature that are based on a variety of empirical reviews pertaining to the factors that determine the lending rate of commercial banks.

2.1 Conceptual Review

The most significant organizations for allocating financial resources and mobilizing savings are commercial banks. As a result, they play a significant role in the expansion and development of the economy. The industrial revolution increased the pace of commercial and production activity, which resulted in the necessity for substantial capital outlays for projects. This is when lending practices originated worldwide. During this time, a lot of business leaders turned to banks for support since they were unable to keep up with the abrupt increase in demands for money. In the same way, this role now accounts for the majority of the duties performed by commercial banks. Thus, one of the services provided by commercial banks to their clients is lending, which can be done on a short, medium, or long-term basis (Folawewo & Tennant, 2008).

At the center of the banking industry is lending. At most banks, loans make up 50–75 percent of the total amount, are the main source of operational income, and expose the banks to a higher degree of risk. Bank credit supports economic expansion in a number of ways. Given that bank lending is a significant source of revenue generation and carries a high degree of risk, banks must exercise caution when examining the different factors that influence bank lending behavior. In order to lend money while producing a suitable and sustainable profit, keeping liquidity, and guaranteeing safety, banks need to formulate and implement policies with a high level of practicality. According to Ewert et al. (2000), banks primarily convert liquid assets like deposits into illiquid assets like loans.

Because of how resources are distributed throughout the economy, interest rates have a significant impact on a nation's financial system. As a result, interest rates comprise the

rates charged on deposits (deposit rate) and loans to deficit units (lending rate) for a specific time frame. Savings, call, and time deposit rates are examples of deposit rates; on the other hand, overdraft (or overnight) and term loan (often referred to as long-term borrowing) rates are examples of lending rates. Rates have the power to act as a middleman between borrowers and possible lenders (Kaymaz & Kaymaz, 2011).

2.2 Theoretical Review

a. The Classical Theory of Interest Rates

This theory essentially maintains that the intersection of the capital supply and demand determines the rate of interest. It is based on the general equilibrium theory. A rate of interest is said to be in equilibrium when the supply and demand of capital are equal. The majority of the capital supply comes from community savings, while the demand for capital comes from the entrepreneurial sectors. The capital supply is represented by the savings schedule. Thus, the two actual factors that affect the rate of interest are saves and investments. The point where the savings schedule and the investment demand schedule converge is the interest rate. Total savings and total investment are equal at the ideal rate of interest (Ahuja, 1992).

- Demand for capital

Entrepreneurs that want to invest in capital industries are the ones who drive the need for money. In actuality, the need for savings is implied by the need for capital. Because capital can continue to generate revenue after paying for its interest costs, it is in high demand. Thus, the demand curve for capital is determined by the marginal productivity curve of capital.

- Supply of capital

Since saving is the foundation of capital production, the amount of capital available in the economy is largely determined by the amount of savings that individuals are willing and able to save.

- The Equilibrium Rate of Interest in the Classical Theory of Interest Rate

This theory emphasizes the productivity of capital variables that tend to vary slowly and the public's penchant for frugal living, the classical theory of interest rates is known

as the long-term explanation of interest rates. It is beneficial to comprehend some of the long-term factors influencing interest rates. The importance of savings and investment demand in setting market interest rates is emphasized by this hypothesis. It is believed that the demand for investments is inversely correlated with the market interest rate, whilst the supply of savings is favorably correlated with the rate. When the total supply of savings and the quantity of demand for investments are in balance with one another, the equilibrium interest rate is determined.

b. The Loanable Funds Theory of Interest

The traditional Theory of Interest's shortcomings were the sole reason behind the development of the Loanable Funds Theory of Interest. First of all, the renowned Swedish economist Knut Wicksell is credited with developing this hypothesis. Another name for this theory is the "neo-classical theory of interest." Subsequently, several economists further advance and refine the idea. According to this hypothesis, the relationship between the supply and demand of loanable money determines the interest rate. The monetary and non-monetary components of the issue are included in the loanable funds hypothesis (Ahuja, 1992).

Savings (S) + new money (new money supply arising from credit creation by commercial banks) represent the supply of loanable funds. The investment expenditure, which is the demand for investible funds (I) plus net hoarding (H), or the desire for loanable funds to be used as inactive cash balances, makes up the demand for loanable funds.

- Demand for Loanable Funds

The loanable fund (capital) depends on the following factors;

- i. Demand for Investment (I)

A commercial company often needs capital to carry out its operations and buy capital items like buildings, machinery, equipment, etc. The predicted net rate of return on capital or the marginal revenue productivity of capital determine the demand for these loans.

ii) Demand for Hoarding (H)

Humans are inherently drawn to liquidity. They therefore want to retain a portion of their income as liquid, cash, or idle money. This stockpiling might be used to secure capital items, purchase shares, or lend money to others. There are two reasons why someone would hoard: When the market interest rate rises, hoarded money can be invested quickly to achieve better earnings (option 1), or it can be used to buy shares and securities at a discount with the goal of selling them at a higher price later (option 2).

- Supply of Loanable Funds

According to the loanable funds theory, the sources of supply of capital depend on the following factors.

i) Savings (S)

The savings of private individuals, families, companies, etc. provide the source of loanable cash. As a matter of fact, these types of businesses avoid the lending markets altogether, even when their savings account balances are sufficient to cover the loanable money. Consequently, the rate of interest is influenced by the amount of these funds. All savings are therefore interest-elastic.

ii) Bank Money (M)

Bank money, or credit, is produced by commercial banks. Through credit or bank money produced in this fashion, the banks lend money to manufacturers and businesspeople. When credit is required, the commercial banks may also extend credit. They purchase and sell securities as well. The bank's liquidity situation, not the interest rate, determines how much money is in the bank.

- Determination of the Rate of Interest

The relationship between the supply and demand of loanable money determines the interest rate. This equilibrium state is limited to the short term. The long-run rate of interest is eventually established at a point where both saves and investment are equal to each other because when investment volume exceeds savings volume, people's income grows over time and so do savings.

c. The Liquidity Preference Theory of Interest

According to Keynes, the rate of interest is the compensation for giving up liquidity for a predetermined amount of time. He contends that the supply and demand for money affect interest rates (Ahuja, 1992).

- Demand for Money

The public's propensity for holding cash is known as liquidity preference. Three reasons, in Keynes' opinion, explain why people want to keep cash on hand. They are

i) Transactions Motive

The desire for money or the requirement for cash for the ongoing trades between individuals and businesses is the transaction motivation. People keep cash on hand to cover the difference between their income and expenses. We refer to this as the income motivation.

ii) Precautionary Motive

The urge to have cash on hand for unforeseen circumstances is known as the precautionary reason for retaining money. People keep some cash on hand in case of illness, accidents, unemployment, or other unforeseen circumstances. In a similar vein, businesspeople save money for unforeseen opportunities or to weather bad times.

iii) Speculative Motive

The urge to keep assets liquid in order to capitalize on potential future changes in bond prices or interest rates is known as the speculative motivation. The relationship between bond prices and interest rates is inverse. People will purchase bonds to sell when the price of the bonds really rises if bond prices are predicted to rise, that is, if the rate of interest is predicted to decrease. People will sell bonds to protect themselves from losses, nevertheless, if it is anticipated that bond prices would decline and the interest rate will increase.

- Determination of the Rate of Interest

Keynes (1936) asserted that the entire money supply and the total demand for liquid money interact to determine the interest rate. The need for liquid money for

transactions, precautions, and speculation all contribute to the total demand for liquid money. The desire for cash balances for the first and second purposes is referred to as M1 by Keynes, whereas the demand for cash balances for the third motive is referred to as M2. M1 is totally dependent on income, while M2 is entirely dependent on interest rates. Keynes designated M as the sum of M1 and M2 to represent a nation's overall demand for money. The overall demand for money (M) is subject to change in interest rates, meaning that it is interest-elastic. On the other hand, the country's Central Bank's government and its laws and regulations determine the overall amount of money in circulation. Money as a whole is interest-inelastic. The intersection of the money supply and liquid money demand (also known as the liquidity preference curve) curves determines the interest rate. In spite of what was previously said, the rate of interest stays constant if the Central Bank modifies the money supply in the same proportion as changes in the demand for people's cash balances or if increases or decreases in the demand for people's cash balances occur in the same proportion.

d. The Rational Expectation Theory

This is predicated on the notion that consumers create expectations in light of all the information accessible in the marketplace. According to rational expectation theory, changes in interest rates are mostly caused by unforeseen information or shifts in economic conditions, and the current spot rate provides the best estimate of future interest rates. The loanable funds theory and the rational expectations theory can be combined to better take into account the knowledge that is currently known about the economy. The main obstacles to rational expectation theory's application are the challenges of information collection and comprehending how the general public utilizes information to create expectations. The theory's basic logic, that the term structure of longer interest rates is shaped by expectations of future short interest rates, is logical, persuasive, and a widely accepted assumption in macroeconomic modeling. Overestimating the forecast of future short-term rates is one of the inherent risks associated with expectation theory. This method can easily leave out information that can limit the amount of change in short-term interest rates, as the theory primarily considers historical long-term interest rate performance. The trajectory of interest rates may be readily impacted by events like natural disasters, political upheavals, or abrupt adjustments in consumer preferences and demands, which can cause the forecasts created using this theory to be inaccurate (Ahuja, 1992).

- **Limitations of the Rational Expectation Theory**

One major issue is the lack of knowledge on the public's expectation-forming process, including the types of data utilized, the weights assigned to particular data items, and the rate at which forecasters learn from their mistakes. The theory of reasonable expectations lacks clarity, and its empirical validation remains mostly unconvincing. A number of features of actual markets appear to contradict the expectations theory's presumptions. For instance, contrary to popular belief, the expense of obtaining and evaluating data pertinent to loan and securities prices is not insignificant. This temptation leads many lenders and funders to base their expectations on illogical trading rules.

e. The Modern Theory of Interest

Currently available ideas about the rate of interest are all ambiguous and imprecise. Although it has attempted, the Loanable Funds Theory has failed to incorporate both the real and monetary components in this study. Similarly, Professor Keynes has focused only on the monetary aspects. Therefore, no hypothesis has been able to provide a good enough explanation for how the rate of interest is determined. Prof. Hicks and Hansen have thus developed a different theory on it. The Modern Theory of Interest is the name given to this theory. The established idea of Interest is another name for this idea. According to Professors Hicks and Hansen, the only distinction between the classical and loanable funds theories is how they define saves; otherwise, they are identical. As a result, in their contemporary theory of interest, these economists have tried to combine elements of the Keynesian theory of interest with the classical and neo-classical theories. Alternatively, attempts have been made to combine the monetary and real aspects in this modern theory. In actuality, both the monetary and real components of the Keynesian theory make sense when it comes to determining wages. Consequently, by combining these two elements, these contemporary economists have provided a convincing explanation for how the rate of interest is determined (Thapa, 2013).

This contemporary theory states that the calculation of the interest rate takes into account the following factors: (i) supply function, (iv) liquidity preference function, (iii) investment function, and (iii) saving function. By including the income level into

these four components, the hypothesis may also be fully realized. Prof. Hicks has created an IS curve to illustrate the confluence of these several components. This IS curve describes an equilibrium that has been set up in the real sector. Prof. Hansen, on the other hand, has created an LM curve to display the same combination. This LM curve represents a state of equilibrium that has been reached in the banking industry. The rate of interest is found at the intersection of these two curves, according to contemporary understanding of the rate of interest. Let's now quickly go over how the IS and LM curves were constructed (Ahuja, 1992).

- **Determination of the Rate of Interest**

The rate of interest is set at the point where these investments and savings (real components) are in equilibrium, according to classical economics. However, we have also discussed the LM curve creation procedure above. The supply and demand of money are combined to create this LM curve, which represents cash balance demand. Alternatively, the supply and demand of money have reached equilibrium at this point on the LM curve for cash balances. According to Professor Keynes, the equilibrium between the supply and demand of money (monetary variables) determines the interest rate. However, the rate of interest is solely controlled by the interplay of these two processes, as neither of these processes alone determines the rate of interest.

In order to explain how a change in any one of these factors affects the rate of interest and the level of income, the modern theory has taken into account all of the variables, including the desire to save (or propensity to save), supply of money, investment, liquidity preference, etc. In addition, the theory describes how a nation's government affects the money supply (LM curve) by adjusting its monetary policy and how it affects savings and investment (IS curve) by altering public spending.

f. Preferred Habitat Theory

The expectancies hypothesis, which contends that long-term yields reflect an estimate of future expected short-term yields, is expanded upon by the preferred habitat theory. The expectations hypothesis postulates that bond investors are primarily interested in yield and will purchase bonds with any maturity, which would imply a flat term structure unless rising rate expectations are anticipated. The expectation theory is

extended by the preferred habitat hypothesis, which states that bond investors are concerned with both return and maturity. It implies that because an additional premium is required to persuade bond investors to buy longer term bonds as well as bonds that are beyond their preferred maturity date, short-term rates will nearly always be lower than long-term yields. The expectation theory's substitution and the segmentation theory's assertion that substitution poses a risk to savers and borrowers alike are accepted by the preferred habitat theory of term structure (Shrestha & Bhandari, 2004).

This idea is not as rigid as any of them, though. Preferred habitat, in short, agrees to the maturity substitution motion—but only if it results in a higher interest rate for savers and borrowers. Liquidity premium is the term used to describe the increased return to the investor. While acknowledging the expectation theory, the preferred habitat hypothesis maintains that the yield curve does not accurately reflect market expectations. This is due to the fact that the preferred habitat theory acknowledges the presence of a liquidity premium that is included in bond rates for specific maturities. According to this hypothesis, investors look for their ideal environment when it comes to confirming the maturities of assets that align with their intended holding term, tax exposure, liquidity needs, and chosen level of risk. Thus, the yield curve's characteristics are shaped by variables other than expectations along, as per the preferred habitat hypothesis. Preferred habitat proponents contend that investors base their expectations for future interest rates on past performance, the current trend in interest rates, and what past experience indicates is the "normal" range for rates. Since most investors believe that present interest rate patterns will last into the near future, rising rates in recent weeks often engender expectations that rates will climb further in the near future. Nonetheless, investors often anticipate that interest rates will eventually revert to their historical normal (Rose, 2003).

g. Credit Market Theory

The terms of credits are assumed to clear the market in a neoclassical credit market model. According to the idea, the quantity of credit that the banking industry disburses is solely determined by the lending rate, provided that collateral and other relevant limitations are maintained. According to the model credit market theory, credit terms clear the market. The loan rate therefore emerges as the only pricing mechanism in a market where collateral and other constraints stay the same. Lending rates rise in

response to a rising credit supply and a rising demand for credit; in contrast, lending rates fall in response to a falling demand and a rising credit supply. A risk premium represents any additional risk associated with a project. As a result, the likelihood of default and the lending rate applied to a loan are positively correlated. Thus, it may be concluded that the interest premium increases with the borrower's chance of failure (Ewert et al., 2000).

According to the hypothesis, a borrower with a high risk profile would need to submit more collateral in order to receive the same loan rate as a borrower with a low risk profile, who would pay a lower risk premium. This results in the "moral hazard" and unfavorable selection processes that are caused by the borrowers' and lenders' knowledge asymmetry. Since the borrower is better knowledgeable about the risk profile of his investment than the lender is, he may take covert measures to raise the investment's risk without the lender knowing about it. When lenders increase lending rates to protect themselves from default, they draw in high-risk borrowers and drive out low-risk borrowers, which gives rise to the adverse selection problem (Mbao et al., 2014). The purpose of this study is to determine how credit information sharing affects the adverse selection issue and, consequently, the average lending rate.

2.3 Empirical Review

Georgievska et al. (2010) explored the determinants of lending interest rates and interest rate spreads in Macedonia. This study investigated the determinants of lending interest rates and interest rate spreads in Macedonia. The panel data analysis techniques were used on a sample of commercial banks in Macedonia to analyze the data. It was found that lending rates were mostly influenced by bank size and market share, and to a somewhat lesser extent by deposit rates and non-performing loans. In addition, policy variables such as the domestic policy rate and the foreign interest rate also appear to be quite important. Furthermore, bank size and market share, as well as the differential between domestic and foreign rates, were the most important factors affecting interest rate spreads.

Lamichhane (2013) studied on determinants of interest rate in Nepalese commercial banks to identify the trend of deposit rate, lending rate, inflation, and risk free rate, to identify the determinant factors and methods of interest rate, to identify the relationship

of interest rate with deposit, lending, interest rate, inflation, and risk free rate, and to analyze the environmental factors affecting interest rate. This study found that interest rates on deposits and lending rates are declining, while inflation and risk-free rates fluctuate over time. The key elements that influence interest rates are risk, return, inflation, and the risk-free rate. The correlation study between deposit rate and deposit amount, lending rate and loan amount, and other parameters demonstrates a negative connection and a positive correlation. Most of the commercial banks used simple regular method. Maturity period, market competition, political instability also affect interest rate.

Parajuli (2014) studied on factors affecting interest rate in listed Nepalese banks and finance companies. The study's primary goals were to determine whether interest rates on loans and deposits are correlated, to ascertain how inflation affects the interest rates sample organizations charge and offer, and to pinpoint additional significant factors influencing the interest rates listed companies charge and offer. According to the study, there must be a positive correlation—that is, more deposits are drawn to higher interest rates. The interest rates that Nepalese banking and financial businesses charge and provide are significantly impacted by political unrest, violence, and insecurity. Competition has an impact on lending and borrowing interest rates as well. The amount of deposits and the interest rate on deposits have a negative association. There is a positive association between loan amounts and interest rates.

Krnic (2014) studied on determinants of lending interest rates granted to companies in Croatia. This study sought to increase understanding of the level of interest rates on company-granted loans as well as the primary factors that determine these rates. The interest rates on business loans in Croatia and a few other European nations were compared, and interest rate patterns were looked at in connection to other variables. According to the study, Croatia's individual variable values differed significantly from the estimated fair values for all other nations. In Croatia and other studied nations, there was a high link found between firm loan interest rates and some macroeconomic indicators as well as banking sector characteristics.

Bhattarai (2015) analyzed on determinants of lending interest rates of Nepalese commercial banks with the objectives to explore the factors of lending rate of Nepalese

commercial banks. The data study was based on a sample of six commercial banks examined during a six-year period (2010 to 2015). The following models were utilized in the study: pooled OLS, fixed effects, and random effects. The study's findings show that the operating expenses to total assets ratio, profitability (ROA), and default risk all have a strong favorable influence on commercial bank lending rates. However, the deposit rate has little influence on the lending interest rate. Thus, this study suggests that the primary factors of commercial banks' lending rates in Nepalese perspectives are: operating expenses to total assets ratio, profitability (ROA), and default risk.

Pokhrel (2015) analyzed on determinants of interest rates in Nepalese financial market. Finding the factors that influence interest rates in Nepalese markets, investigating the relationship between interest rates, deposits, credit rates, and inflation, demonstrating the relationship between liquidity position and interest rates on deposits and loans, determining the impact of inflation on interest rates charged and provided by different Nepalese financial institutions, and identifying the various techniques employed by Nepalese financial institutions to compute interest on loans were the main goals of the study. The study found a strong negative link between the amount of deposits collected by the sample organizations and the interest rate on deposits. This indicates that even while the interest rate on deposits, which is what attracts deposits, was down, the total number of deposits at all sample banks was shown to be increasing. In a similar vein, the disseminator discovered a strong positive correlation between the interest rates on deposits and loans for each sample bank. It was determined that one interest rate influences the other. The association between interest rates on deposits and inflation rates is also investigated, and similar findings are made when the relationship between lending rates and inflation rates is investigated.

Ali et al. (2016) analyzed some inner factors affecting the lending rate and commercial bank behavior. This study looked at the probable fundamental variables influencing loan rates in Pakistan's commercial banking industry. Seven bank-specific variables (capital adequacy, managerial efficiency, liquidity, asset quality, investment-to-asset, loan-to-asset, and deposit-to-asset ratios) were chosen for this purpose to assess their influence on lending behavior. Panel data methods were used. Only four of the seven explanatory variables (investment-to-total-asset ratio, deposit-to-asset ratio, loan-to-asset ratio, and liquidity ratio) were shown to have a meaningful connection with

lending rate. Two of the important determinants (liquidity ratio and investment to asset ratio) were found to be positively connected with lending rate, whereas the other two major variables (loan to asset ratio and deposit to asset ratio) were found to be negatively associated.

Poudel (2016) studied on factors determining the interest rate of the financial institution in Nepal. The study's primary goals were to analyze the methods and determinant factors that affect interest rates, to determine the trends in lending, deposit, interest rate, and risk-free rates, and to determine how interest rates relate to these variables. According to this study, risk, return, inflation, and risk-free rate are the primary determinants of interest rates. Interest rates are influenced by tax laws and regulations in addition to the current investment environment. While inflation and the risk-free rate are trending up, interest rates on deposits and loans are trending lower. There is a negative association between deposit rate and amount as well as a positive correlation between lending rate and amount when compared to other parameters.

Sharma (2017) studied on determinants of interest rate in Nepalese finance companies. The study's primary goals were to demonstrate the relationship between the interest rate on deposits and loans and the liquidity position, to determine the impact of inflation on the interest rates charged and provided by different Nepalese finance companies, and to ascertain the influence of the maturity period and other economic factors on the interest rates provided by Nepalese finance companies. The study discovered that interest rates are significantly influenced by liquidity. Interest rates and liquidity have a negative relationship, whereas interest rates on deposits and interest rates lending have a positive connection. This suggests that interest rates are favorably correlated with accepted deposits and loan amounts. The competitive environment between financial organizations heavily influences the form of interest rates, and this conclusion is based on interviews conducted with respondents from the finance industry. The offered rate may vary depending on the industry via client and business negotiations, since NRB instructions have loosened the restrictions on how much a financial firm can charge for interest.

Tadiyos (2018) examined on determinants of lending rate of private commercial banks in Ethiopia. The loan rate drivers in Ethiopia's private commercial banking industry

were examined in this study. Unbalanced panel data from the annual reports of eight Ethiopian commercial banks were utilized in the study. The findings demonstrated a positive and substantial relationship between bank lending rate and deposit rate, bank size, and operational costs. Lending rates are significantly and negatively impacted by credit risk, bank concentration, and GDP. Nonetheless, inflation and reserve requirements have little bearing on how lending rates are determined.

Al-Qudah (2021) investigated the determinants of interest rates on loan and advances of Jordanian listed commercial banks. The purpose of this study was to look at the factors that influence lending interest rates at Jordanian commercial banks listed on the Amman Stock Exchange. The fixed effects model was used in this investigation, as recommended by the Hausman test. ROA and bank size were found to have a negative substantial influence on lending interest rates. Liquidity had a negligible negative influence. The findings also suggest that deposit interest rates and inflation had a considerable favorable influence on Jordanian commercial banks' lending interest rates. The operating cost ratio also had a somewhat favorable influence. Thus, the findings suggest that ROA, bank size, interest rate on deposit, and inflation rate were strong predictors of Jordanian commercial banks' interest rates.

Motaze (2022) analyzed on the determinants of the lending interest rate in a cost-based approach: Theoretical model and empirical analysis. The purpose of this study was to establish the loan interest rate used by a financial institution using a cost-based methodology. For the analysis, this study employed four major components of the overall cost of credit: net operational expenses, weighted average cost of funding, cost of risk, and weighted cost of equity. According to the findings of this study, interest rates follow the evolution of the floor interest rate. It was also discovered that strive to enhance financial institutions' credit conditions by lowering their credit rates rather than imposing a low rate of interest on them.

Ghimire and Bhandari (2023) analyzed the determining factors of lending interest rate of commercial banks in Nepal. This research looked at the elements that influence commercial banks' lending rates in Nepal. The lending rate was the outcome variable, with the deposit rate (DR), profitability (ROA), and non-performing loans serving as explanatory factors. A descriptive and causal comparative research approach was

adopted in this study. To evaluate the data in this study, the pooled OLS model, fixed effects model, and random effects model were employed. The deposit rate was shown to have a substantial impact on the bank's lending rate, but the operating costs to total assets ratio, return on assets (ROA), and non-performing assets had no significant impact on the interest rate given by commercial banks.

2.4 Research Gap

Comprehensive studies on the factors influencing lending interest rates in Nepalese commercial banks are hard to come by. Only a small number of these concerns have been published as articles in various newspapers on the same subject; the majority of the study was restricted to lending interest rates. Despite reviewing a variety of articles from newspapers, periodicals, and internet, the researcher was unable to provide any insight into the overall situation. Past scholars have studied either in case studies involving various organizations and commercial banks.

This study focused on analysis of factors affecting the lending interest rate of commercial banks in Nepal i.e. EBL, HBL, NSBL, SCBNL, NABIL and NMB. This study also covers the recent and updated data of six commercial banks under the study. This study analyzed the effect of bank size, deposit interest ratio, liquidity ratio, profitability ratio, operating expenses ratio, inflation rate on lending interest rate of the banks. In this study the panel data of six sample banks are analyzed using the help of multiple regression analysis tools. Thus this study fills the research gap of previous studies in term of research methodology, sample data and research variables used for the analysis. Hence, no conclusion can be drawn from previous study regarding this topic. In this regard, researcher from this study aims to find out the factors that determines the interest rates and the effect of interest rates in the profit or earnings of the Nepalese commercial banks.

CHAPTER- III

RESEARCH METHODOLOGY

The five different sequential processes that a researcher must take while investigating an issue with a specific goal in mind are referred to as research methodology. study design, population and sample, data type and sources, data analysis techniques, study methodology, variable definitions, etc. are all highlighted.

3.1 Research Design

This study is an explanatory research and used quantitative data. To cover the objective and analysis of the study descriptive and causal research design is used. Descriptive research design explored position and trend of interest rates in Nepal using descriptive statistical analysis tools and the causal research examined the effect and relationship of influencing factors with lending interest rate in Nepalese commercial banks with the help of correlation and regression analysis technique.

3.2 Population and Samples

A small portion chosen from the population for studying its properties is called a sample and the number of units in the sample is known as sample size. There were 20 commercial banks operating in Nepal till January 2023 which are the population for the study and among them six commercial banks are selected as sample for the study using convenient sampling method since the availability of the data of the banks are easy to excess. The sample banks selected for the study are; EBL, HBL, NSBL, SCBNL, NABIL and NMB conveniently.

3.3 Nature and Sources of Data

For this study only secondary data are used and the data are collected mainly from published annual report of the sample commercial banks collected form the authorized websites of the banks. The data of the study covers ten years from year 2012/13 to 2021/22.

3.4 Research Framework and Definition of Variables

From the literature review, discussed above, the researcher constructed the following conceptual framework to summarize the main focus and scope of this study in terms of dependent and independent variables included. Conceptual framework for the study is stated below;

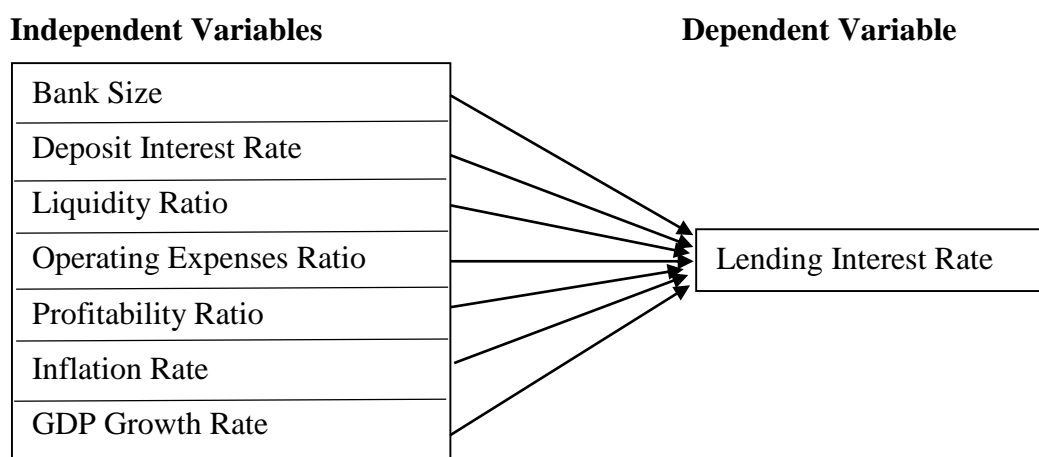


Figure 1. Research Framework

Source: (Baumol & Blinder, 2010; Nasrin et al., 2015; Mbaio et al., 2014; Bhattarai, 2015; Adoah, 2015; Samuel, 2018; and Al-Qudah, 2021)

3.5 Definition of Variables

3.5.1 Independent Variables

In this study five bank specific variables and two macro-economic variables are used as independent variables for the analysis of determinants of lending interest rate in Nepalese commercial banks.

Bank Size

The natural logarithm of the banks' total assets is used to calculate bank size; Al-Qudah (2021) also examined total assets in relation to bank size in a prior research. Large banks are justified in their ability to manage credit risk because they have developed sound and efficient credit risk management systems, introduced cutting-edge tools and technology, improved portfolio diversification opportunities, and a competitive advantage through economies of scale. As a result, large banks are able to offer loans to their customers with low landing rates (Atakelt & Veni, 2015).

H1: Bank size has negative effect on lending interest rate.

Deposit Interest Rate

The amount of interest that a bank or other financial institution pays on cash deposits is referred to as the deposit rate. For savings and other investment accounts, banks provide deposit rates. Financial institutions pay deposit account holders the deposit interest rate. Certificates of deposit, savings accounts, and retirement accounts with self-directed deposits are examples of deposit accounts. There are several ways that charging a high deposit rate affects credit risk. First, a high deposit rate has a direct impact on the loan rate. In turn, lending rates, particularly when imposing a high-risk premium on high-risk borrowers, have a variety of effects on the ability of borrowers to repay their loans. As a result, it improves the quality of loans since high interest rates result in higher borrowing costs, which in turn raise the burden of loans (Nasrin et al., 2015).

H2: Liquidity ratio has negative effect on lending interest rate.

Liquidity Ratio

The ratio of liquid assets to total assets is a measure of liquidity. Cash and deposit balances at other banks, as well as the bank's reserve requirement, are referred to as liquid assets (Kiptui, 2014). Because excess liquidity comes with an opportunity cost, the banks are implicitly taxed on their surplus liquidity. Adoah (2015) also stated that there is a positive correlation between the bank liquidity ratio and lending interest rate.

Liquidity ratio in this study is calculated as;

$$\text{Liquidity Ratio} = \frac{\text{Total Liquid Assets}}{\text{Total Deposit}}$$

H3: Deposit interest rate has positive effect on lending interest rate.

Operating Expenses Ratio

One of the independent variables in this study is the ratio of operating expenditures to total assets. The cost needed to offer a loan unit is measured by the ratio of operational expenditures to total assets, which is dependent on staff productivity. Other operating expenses include depreciation, branch network, administrative responsibilities, and transportation (Bhattarai, 2015). (Samuel, 2018). Francis et al. (2014) found that the commercial banks' efficiency is shown by their ratio of operating expenditures to total assets, where a lower ratio indicates more efficiency. Operating expenses ratio is calculated as;

$$\text{Operating Expenses Ratio} = \frac{\text{Total Operating Cost}}{\text{Total Assets}}$$

H4: Operating expenses ratio has positive effect on lending interest rate.

Profitability Ratio

A profitability ratio is a term used to assess the success of a business by calculating its profitability. To put it simply, profitability is the ability to turn a profit, which is the amount of money left over after all expenditures and expenses associated with generating the revenue have been subtracted. You may evaluate a company's performance and compare it to other firms in similar circumstances using the formulae you are about to learn. This is often regarded as a reliable metric for assessing a bank's asset profitability relative to other banks in the banking sector. Mbaio et al. (2014) discovered a negative correlation between profitability and lending rates. Profitability as return on assets is used in this study which is calculated as;

$$\text{Return on Assets} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

H5: Profitability has positive effect on lending interest rate.

Inflation Rate

The steady rate at which the average cost of a chosen basket of products and services in an economy rises over time is called inflation, and it may be quantified. A unit of money buys less than it did in previous eras due to the ongoing increase in the overall level of prices (Al-Qudah, 2021). Inflation, which is frequently reported as a percentage, is a measure of how much a country's currency has lost buying power.

$$\text{Inflation Rate} = \frac{(\text{CPI}_t - \text{CPI}_{t-1})}{\text{CPI}_{t-1}}$$

H6: Inflation rate has positive effect on lending interest rate.

GDP Growth Rate

The gross domestic product (GDP) of a country is often measured by its economic growth rate. The percentage change in the total value of goods and services produced in a country during a certain time period relative to a previous period is known as the economic growth rate (Tadiyos, 2018). An economy's relative health over time is determined by looking at its economic growth rate.

$$\text{GDP Growth Rate} = \frac{\text{GDP}_1 - \text{GDP}_0}{\text{GDP}_0}$$

H7: GDP growth rate has negative effect on lending interest rate.

3.5.2 Dependent Variable

Lending Interest Rate

The proportion of the loan amount that the lender charges in order to lend money is known as the lending interest rate. Interest is tacked on to loans made by banks to their clients for a variety of purposes, such as profit-making, risk-reward, and value maintenance. In order to promote and support economic investments that raise national revenue, employment, and productivity, lending is crucial. When financing rates drop, businesses are encouraged to invest in new factories, buildings, machinery, equipment, and other assets (Baumol & Blinder, 2010).

3.5 Methods of Analysis

Multiple regression analysis and descriptive statistics are the two types of analysis methods employed in this study. This comprises each variable's mean, maximum, minimum, and standard deviation.

3.5.1 Arithmetic Mean

It is the collection of observations' arithmetic or simple mean. The arithmetic average of a variable is the best value that represents the group as a whole. In this study, it is utilized to determine the mean of the profitability and financial ratios. It is calculated as:

$$\text{Mean} (\bar{X}) = \frac{\sum X}{n}$$

Where,

$\sum X$ = Sum of given Observation

n = No. of Observation

3.5.2 Standard Deviation

Since the standard deviation met the most of the requirements for a good measure of dispersion, it is the absolute measure of dispersion in which the flaw found in other measures of dispersion is present. Greater standard deviation, the variability will be

higher and vice versa. It is used to determine the standard deviation of all computed profitability and financial ratios. It is calculate as:

$$\text{Standard Deviation (SD)} = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n-1}}$$

3.5.3 Coefficient of Variation

Coefficient of variation is the percentage equivalent of the coefficient of standard deviation. Uniformity and consistency increase with decreasing CV, and vice versa. An absolute measure of dispersion is provided by the standard deviation. The coefficient of variation calculates the relative measurements of dispersion, making it possible to compare the variability of two variables separately.

$$\text{Coefficient of Variation (CV)} = \frac{SD}{\bar{X}}$$

3.5.4 Correlation Analysis

The relationship between an independent variable and another independent variable is known as the correlation coefficient. It is a technique for ascertaining how these two variables are related to one another. A variable is said to have a correlation coefficient if the two are so connected that changes in one variable's value are caused by changes in the value of another.

$$\text{Correlation Coefficient (r)} = \frac{n\Sigma XY - \Sigma X \Sigma Y}{\sqrt{n\Sigma X^2 - (\Sigma X)^2} \sqrt{n\Sigma Y^2 - (\Sigma Y)^2}}$$

Where,

X & Y = Variables i.e. bank size, deposit interest ratio, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate, GDP growth rate and lending interest rate

3.5.5 t- Statistics

For this study, t-test for significance of an observed and sample correlation coefficient between profitability and the determining factors in this study. The t-distribution analysis consists of;

Null hypothesis (H_0); $\rho = 0$ i.e. The correlation between the variables are not significant in the population.

Alternative Hypothesis (H_1); $\rho \neq 0$ i.e. The correlation between the variables are significant in the population.

Test statistic under H_0 ;

$$t = \frac{r}{\sqrt{1 - r^2}} \times \sqrt{n - 2}$$

Where,

r = Sample correlation between two variables

r^2 = Coefficient Determination

n = No. observations

Level of significance: Level of significance $\alpha = 5\%$

Decision: If p-value for the calculated correlation coefficient is less than the significance level the null hypothesis is rejected concluding the coefficient is significant in the population and if p-value for the calculated correlation coefficient is greater than the significance level null hypothesis is accepted concluding that the coefficient is not significant in the population.

3.5.6 Regression Model

Using regression analysis techniques, the bank analysis of particular profitability variables in this study attempted to examine the profitability factors in commercial banks and their impact on profitability. The main research variables in this study are the lending interest rate-specific characteristics such as bank size, deposit interest rate, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate, and GDP growth rate. This research examines the following regression equation to determine how independent factors affect dependent variables. The regression model for the study is;

$$LIR = \beta_0 + \beta_1 \text{LnSize} + \beta_2 \text{DIR} + \beta_3 \text{LQR} + \beta_4 \text{ROA} + \beta_5 \text{OER} + \beta_6 \text{INF} + \beta_7 \text{GDPG} + e$$

Where,

LIR = Lending Interest Rate

β_0 = Beta coefficient of the regression equation

β_1 = Beta coefficient for Bank Size

β_2 = Beta coefficient for Deposit Interest Rate

β_3 = Beta coefficient for Liquidity Ratio

β_4 = Beta coefficient for Return on Assets

β_5 = Beta coefficient for Operating expenses Ratio

β_6 = Beta coefficient for Inflation Rate

β_7 = Beta coefficient for GDP Growth Rate

LnSize = Logarithm of Total Assets

DIR= Deposit Interest Rate

LQR = Liquidity Ratio

ROA = Return on Assets

OER = Operation Expenses Ratio

INF = Inflation Rate

GDPG = GDP Growth Rate

e = Residual term of the regression equation

CHAPTER- IV

RESULTS AND DISCUSSION

This chapter is divided into two parts results which includes data analysis with the help of statistical data analysis tools such as, descriptive analysis, correlational analysis and regression analysis and other is discussion which tries to compare the findings of the study with the previous scholar's findings.

4.1 Results

The results section includes three data analysis techniques used in this study, descriptive analysis, correlation analysis and regression analysis.

4.1.1 Descriptive Analysis

Descriptive analysis in this study tried to summarize the data collected from the annual reports of the sample banks for the period 2012/13 to 2021/22. In this study the data of six sample banks are arranged in panel data set for the analysis. The summary of data shows the position of variables and the variation in the variables over the study period.

Table 1

Descriptive Statistics

| Variables | N | Minimum | Maximum | Mean | Std. Deviation |
|-----------|----|---------|---------|--------|----------------|
| LnSize | 60 | 4.400 | 5.620 | 5.035 | 0.236 |
| DIR | 60 | 1.010 | 6.760 | 4.078 | 1.589 |
| LIQ | 60 | 3.050 | 31.390 | 12.541 | 7.169 |
| OER | 60 | 1.070 | 7.650 | 3.396 | 1.924 |
| ROA | 60 | 0.700 | 3.250 | 1.781 | 0.521 |
| INF | 60 | 3.600 | 9.920 | 6.546 | 2.303 |
| GDPG | 60 | -2.370 | 8.980 | 4.493 | 3.246 |
| LIR | 60 | 6.800 | 12.720 | 9.741 | 1.506 |

Source: Appendix- II

Table 1 shows the descriptive summary of bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate, GDP growth rate and lending interest rate of the sample banks over the study period. The bank size during the study period ranges from minimum of 4.40 to maximum of 5.62 and this narrow range shows that there is less variability in total of the banks during the study period.

The average banks size is 5.035 with the standard deviation of 0.236 showing that there is quite consistent growth in total assets of the banks during the study period.

Similarly, the average deposit interest rate of the banks is 4.078 percent with the standard deviation of 1.589 percent which means that the banks are paying 4.078 percent interest to the depositors during the study period. The deposit interest rate of the banks ranges from 1.01 percent to 6.76 percent. The standard deviation in the deposit interest rate shows that there is quite high variation in comparison to the mean of the deposit interest rate of the banks.

The liquidity ratio of the banks shows that banks are maintaining 12.541 percent of the deposit collection as liquid assets which makes the banks secured from current liquidity crisis for the regular transaction. There is quite high variation in liquidity ratio of the banks since there is more than 50 percent of mean is standard deviation i.e. 7.169 percent. The maximum liquidity level of the banks is 31.39 percent while minimum liquidity ratio is 3.05 percent only.

Likewise, operating expenses to total assets ratio of the banks is 3.396 percent on average during the study period, meaning that 3.396 percent of the total assets of the banks spend in the regular activities of the banks. There is maximum of 7.65 percent and minimum of 1.07 percent operating expenses ratio of the banks. The standard deviation in operating coat ratio is 1.924 percent which is near to average operating expenses ratio, meaning that there is higher variation in operating expenses of the banks and operating expenses decreases the net earnings of the bank so banks need to manage operating expenses to enhance earnings of the banks.

The profitability of the banks in term of return on assets of the banks is 1.781 percent on average which reached maximum of 3.25 percent to minimum of 0.70 percent which means that the profitability of the banks has higher variation over the study period. The summary statistics also shows that there is higher variation in liquidity ratio and operating expenses ratio of the banks during the study period and both liquidity and operating expenses contribute to the decrease earnings so banks should aware on managing liquidity and operating expenses in coming years.

Similarly, the average inflation rate during the study period is 6.546 percent with the standard deviation of 2.303 percent. The maximum and minimum inflation rate are 9.92 percent and 3.60 percent respectively. The wide range of inflation rate indicates that there is higher variability in the inflation rate in Nepal during the study period.

The average GDP growth rate during the study period is 4.493 percent with the standard deviation of 3.246 percent. The maximum and minimum GDP growth rate are 8.89 percent and -2.37 percent respectively. There is negative growth rate in year 2019/20 during the period of COVID. The wide range of GDP growth rate indicates that there is higher variability in the GDP growth rate in Nepal during the study period.

In contrast, the average lending interest rate of the banks is 9.741 percent meaning that the sample banks under the study charge 9.741 percent on average to their customers on loan. There is maximum lending interest rate of 12.71 percent and minimum lending interest rate is 6.80 percent. The variation in lending interest rate of the banks is 1.506 percent which is quite less than the average lending interest rate meaning that during the study period there is consistent lending interest rate in sample banks.

4.1.2 Correlation Analysis

The correlation analysis in this study is conducted to find out the relationship of lending interest rate of the commercial banks with the independent variables; bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate and GDP growth rate. The data analysis in this part is done with the help of SPSS software and the for the analysis panel data of six sample banks are used for the ten years study period.

Table 2 depicts the relationship analysis result of lending interest rate with bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets inflation rate and GDP growth rate of the bank over the study period. There is low degree positive relation between lending interest rate and bank size with the coefficient 0.109, meaning that lending interest rate of the banks increases when bank size increases. The positive relation between lending interest rate and bank size is not significant at 5 percent since the p-value of the coefficient i.e. 0.409 is higher than 5 percent.

Table 2*Correlation Analysis*

| Variables | LnSize | DIR | LIQ | OER | ROA | INF | GDPG | LIR |
|-----------|---------|---------|--------|--------|-------|---------|-------|-----|
| LnSize | 1.000 | | | | | | | |
| DIR | .498** | 1.000 | | | | | | |
| LIQ | -0.195 | -0.161 | 1.000 | | | | | |
| OER | .261* | 0.244 | -.321* | 1 | | | | |
| ROA | -0.243 | -.435** | 0.188 | -0.092 | 1 | | | |
| INF | -.585** | -.419** | -0.026 | -0.09 | 0.145 | 1 | | |
| GDPG | -0.044 | 0.014 | 0.029 | 0.011 | 0.227 | -.425** | 1 | |
| LIR | 0.109 | .546** | -0.059 | 0.253 | 0.216 | -0.162 | 0.031 | 1 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Appendix- III

Table 2 also shows that there is high degree positive relation between lending interest rate and deposit interest rate i.e. 0.546 which shows the fact that lending interest rate of the bank increases when deposit interest rate of the banks increases. The positive relation of lending interest rate with deposit interest rate of the banks is significant at 1 percent since the p-value of the coefficient i.e. 0.000 is less than 1 percent.

Likewise, liquidity ratio of the banks has negative relation with lending interest rate of the banks i.e. -0.059 which is not significant in the population, since the p-value of the coefficient i.e. 0.654 is higher than 5 percent, meaning that the degree of negative relation of liquidity ratio with lending interest rate is no strong enough.

In contrast, there is significant positive relation between operating expenses ratio and lending interest rate of the banks with the coefficient 0.253, meaning that lending interest rate of the banks increases when operating expenses ratio of the banks increases. The positive relation between operating expenses ratio and lending interest rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.051 is higher than 5 percent.

Profitability of the banks in term of ROA has positive relation with lending interest rate of the banks i.e. 0.216, which means that lending interest rate and profitability of the banks goes in the same direction. The degree of positive relation between profitability

and lending interest rate of the banks is not significant at 5 percent since the p-value of the coefficient i.e. 0.098 is higher than 5 percent.

There is negative relation between lending interest rate with inflation rate of the banks with the coefficient -0.162, meaning that lending interest rate decreases with increment in inflation rate. The negative relation between lending interest rate and inflation rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.215 is higher than 5 percent.

Similarly, there is positive relation between lending interest rate with GDP growth rate of the banks with the coefficient 0.031, meaning that lending interest rate increases with increment in GDP growth rate. The positive relation between lending interest rate and inflation rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.816 is higher than 5 percent.

In short, the correlation analysis shows that lending interest rate has positive relation with bank size, deposit interest rate, operating expenses ratio, return on assets and GDP growth rate but liquidity and inflation rate have negative relation with lending interest rate of the banks.

4.1.3 Regression Analysis

The regression analysis is done in this study to explore the impact of bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate and GDP growth rate on lending interest rate in commercial banks. For the analysis multiple regression analysis model is used in the panel data of six commercial banks form 2012/13 to 2021/22. The data analysis is done in the SPSS software.

Table 3

Model Summary

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|----------|-------------------|----------------------------|---------------|
| .802a | 0.643 | 0.595 | 1.784 | 1.271 |

Predictors: (Constant), GDPG, LIQ, OER, ROA, LnSize, DIR, INF

Dependent Variable: LIR

Source: Appendix- IV

Table 3 provides an overview of the multiple linear regression model used to analyze the relationship between the predictor variables (bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate and GDP growth rate) and the dependent variable lending interest rate. The R-square value of 0.643 indicates that approximately 64.30 percent of the variance in the lending interest rate can be explained by the seven predictor variables in the model. The adjusted R-square value of 0.595 adjusts for the number of predictors in the model and provides a more accurate reflection of the variance explained by the model.

The standard error of the estimate of 1.784 indicates the average distance between the predicted values and the actual values of lending interest rate in the sample data. The change statistics table shows that adding the seven predictor variables to the model significantly increased the R-square value compared to the constant model. The Durbin Watson value of the regression model is 1.271, which indicates that there is low level of autocorrelation in the predictors of the model.

Table 4

ANOVA Analysis

| Statistics | Sum of Squares | df | Mean Square | F | Sig. |
|------------|----------------|----|-------------|--------|-------|
| Regression | 298.16 | 7 | 42.594 | 13.390 | 0.000 |
| Residual | 165.42 | 52 | 3.181 | | |
| Total | 463.57 | 59 | | | |

Dependent Variable: LIR

Predictors: (Constant), GDPG, LIQ, OER, ROA, LnSize, DIR, INF

Source: Appendix- IV

Table 4 presents ANOVA analysis, showing the results of the analysis of variance for the linear regression model. The regression model has seven predictors: GDPG, LIQ, OER, ROA, LnSize, DIR, INF and the dependent variable is LIR.

The table shows the sum of squares, degrees of freedom, mean square, F-statistic, and Sig. statistics for the regression model. The sum of squares for regression is 298.16, indicating that the model explains a significant amount of the variation in lending interest rate. The F-statistic is 13.390, and the associated p-value is less than 0.01, indicating that at least one of the predictors is significantly related to lending interest rate. The sum of squares for residuals is 165.42, indicating that there is still a significant

amount of unexplained variation in lending interest rate that is not accounted for by the model. Overall, the ANOVA table suggests that the regression model is significant and can be used to predict lending interest rate, but there is still some unexplained variation in the data.

The model as a whole appears to be statistically significant, as indicated by the significant F-statistic and the low p-value for the overall model. However, it's important to note that this analysis does not imply causality and other factors may also influence lending interest rate of Nepalese commercial banks.

Table 5

Regression Coefficients

The table shows the regression results of seven independent variables (i.e. LnSize = Bank Size, DIR = Deposit Interest Rate, LIQ = Liquidity Ratio, OER = Operating Expenses Ratio, ROA = Return on Assets, INF = Inflation Rate, GDPG = GDP Growth Rate) on lending interest rate (LIR) of six Nepalese commercial banks during the study period.

| Variables | Unstandardized Coefficients | | t-statistics | Sig. | Collinearity Statistics | |
|------------|-----------------------------|------------|--------------|-------|-------------------------|-------|
| | B | Std. Error | | | Tolerance | VIF |
| (Constant) | 11.279 | 4.076 | 2.767 | 0.008 | | |
| LnSize | -1.462 | 0.723 | -2.021 | 0.048 | 0.422 | 2.368 |
| DIR | 0.782 | 0.098 | 8.012 | 0.000 | 0.601 | 1.665 |
| LIQ | 0.015 | 0.022 | 0.693 | 0.491 | 0.750 | 1.333 |
| OER | 0.201 | 0.072 | 2.782 | 0.008 | 0.856 | 1.168 |
| ROA | 1.727 | 0.277 | 6.224 | 0.000 | 0.679 | 1.473 |
| INF | -0.123 | 0.085 | -1.452 | 0.153 | 0.406 | 2.464 |
| GDPG | -0.107 | 0.049 | -2.164 | 0.035 | 0.603 | 1.659 |

Dependent Variable: LIR

Source: Appendix- IV

Table 5 illustrates a multiple linear regression analysis, where the dependent variable is LIR (lending interest rate) and the independent variables are LnSize (logarithm of total assets), DIR (deposit interest rate), LIQ (liquidity ratio), OER (operating expenses ratio), ROA (return on assets), INF (inflation rate) and GDPG (GDP growth rate). It shows the Unstandardized Coefficients (B) and their standard errors, t-statistics, sig. statistics as well as Collinearity Statistics for each independent variable. The Collinearity Statistics shows that tolerance values for each independent variables are

well above 0.1 and all VIF values for each independent variables are well below 10, that's why, there is no multicollinearity issues in variables of the model.

The beta coefficients in the table shows that coefficient of bank size is negative ($\beta = -1.462$) showing that there is negative effect of total assets of banks on lending interest rate, meaning that if total assets of banks increases by 1 percent lending interest rate decreases by 1.462 percent and the negative effect of bank size on lending interest rate is significant at 5 percent level of significance since p-value i.e. 0.048 is less than 5 percent level of significance.

On the other hand, the beta coefficient of deposit interest rate is positive ($\beta = 0.782$) showing that there is positive effect of deposit interest rate on lending interest rate, meaning that if deposit interest rate increases by 1 percent lending interest rate increases by 0.782 percent and the positive effect of deposit interest rate on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.000 is less than 1 percent level of significance.

The beta coefficient of liquidity ratio is positive ($\beta = 0.015$) showing that there is positive effect of liquidity ratio on lending interest rate, meaning that if liquidity ratio increases by 1 percent lending interest rate increases by 0.015 percent and the positive effect of liquidity ratio on lending interest rate is not significant at 5 percent level of significance since p-value i.e. 0.491 is higher than 5 percent level of significance.

Likewise, the beta coefficient of operating expenses ratio is positive ($\beta = 0.201$) showing that there is positive effect of operating expenses ratio on lending interest rate, meaning that if operating expenses ratio increases by 1 percent lending interest rate increases by 0.201 percent and the positive effect of operating expenses ratio on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.008 is less than 1 percent level of significance.

Similarly, the beta coefficient of return on assets is positive ($\beta = 1.727$) showing that there is positive effect of return on assets on lending interest rate, meaning that if return on assets increases by 1 percent lending interest rate increases by 1.727 percent and the

positive effect of return on assets on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.000 is less than 1 percent level of significance.

In contrast, the beta coefficient of inflation rate is negative ($\beta = -0.123$) showing that there is negative effect of inflation rate on lending interest rate, meaning that if inflation rate increases by 1 percent lending interest rate decreases by 0.123 percent and the negative effect of inflation rate on lending interest rate is not significant at 5 percent level of significance since p-value i.e. 0.153 is higher than 5 percent level of significance.

On the other hand, the beta coefficient of GDP growth rate is negative ($\beta = -0.106$) showing that there is negative effect of inflation rate on lending interest rate, meaning that if GDP growth rate increases by 1 percent lending interest rate decreases by 0.107 percent and the negative effect of GDP growth rate on lending interest rate is significant at 5 percent level of significance since p-value i.e. 0.035 is less than 5 percent level of significance.

4.2 Discussion

From the data analysis results it was found that there is quite consistent growth in total assets of the banks during the study period. There is quite high variation in comparison to the mean of the deposit interest rate of the banks. Banks are secured from current liquidity crisis for the regular transaction but there is quite high variation in liquidity ratio of the banks. There is higher variation in operating expenses of the banks and operating expenses decreases the net earnings of the bank so banks need to manage operating expenses to enhance earnings of the banks. There is higher variation in liquidity ratio and operating expenses ratio of the banks during the study period and both liquidity and operating expenses contribute to the decrease earnings so banks should aware on managing liquidity and operating expenses in coming years. The wide range of inflation rate indicates that there is higher variability in the inflation rate in Nepal during the study period. There is higher variability in the GDP growth rate in Nepal during the study period. Likewise, during the study period there is consistent lending interest rate in sample banks.

The relationship analysis in this study revealed that there is low degree positive relation between lending interest rate and bank size with the coefficient 0.109, meaning that lending interest rate of the banks increases when bank size increases which is not consistent with the finding of Al-Qudah (2021), who found negative effect of bank size on lending interest of the banks. The positive relation between lending interest rate and bank size is not significant at 5 percent since the p-value of the coefficient i.e. 0.409 is higher than 5 percent.

On the other hand, there is high degree positive relation between lending interest rate and deposit interest rate i.e. 0.546 which shows the fact that lending interest rate of the bank increases when deposit interest rate of the banks increases and this results is consistent with the findings of Kaymaz and Kaymaz (2011) and Al-Qudah (2021), who have found the same high degree positive relation of deposit interest rate and lending interest rate of the banks. When bank pays high interest to the depositors the cost of fund increases and to balance the cost bank charge higher interest rate on loans. The positive relation of lending interest rate with deposit interest rate of the banks is significant at 1 percent since the p-value of the coefficient i.e. 0.000 is less than 1 percent.

Likewise, liquidity ratio of the banks has negative relation with lending interest rate of the banks i.e. -0.059 which is not significant in the population, since the p-value of the coefficient i.e. 0.654 is higher than 5 percent, meaning that the degree of negative relation of liquidity ratio with lending interest rate is no strong enough. This result contradicts the finding of Ali et al. (2016) who found positive relation between liquidity and lending interest rate but Al-Qudah (2021) had found the negative relation of liquidity with lending interest rate of the banks. It can be said that when banks has higher liquidity in hand bank need to utilize the funds in low interest rates.

In contrast, there is significant positive relation between operating expenses ratio and lending interest rate of the banks with the coefficient 0.253, meaning that lending interest rate of the banks increases when operating expenses ratio of the banks increases which is in line with the finding of Bhattarai (2015) and Ali et al. (2016) but the result is opposite with the finding of Kaymaz and Kaymaz (2011), when the operating cost rises banks should manage the increased cost by increasing earnings and for this banks can increase lending interest rates. The positive relation between operating expenses

ratio and lending interest rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.051 is higher than 5 percent.

Profitability of the banks in term of ROA has positive relation with lending interest rate of the banks i.e. 0.216, which means that lending interest rate and profitability of the banks goes in the same direction which is consistent with the findings of Bhattarai (2015) and Al-Qudah (2021) since earnings of the banks mainly depends on interest income which directly affected by lending interest rates. The degree of positive relation between profitability and lending interest rate of the banks is not significant at 5 percent since the p-value of the coefficient i.e. 0.098 is higher than 5 percent.

There is negative relation between lending interest rate with inflation rate of the banks with the coefficient -0.162, meaning that lending interest rate decreases with increment in inflation rate but Ali (2021) found positive relation between inflation rate and lending interest rate of the companies. The negative relation between lending interest rate and inflation rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.215 is higher than 5 percent.

Similarly, there is positive relation between lending interest rate with GDP growth rate of the banks with the coefficient 0.031, meaning that lending interest rate increases with increment in GDP growth rate. The positive relation between lending interest rate and inflation rate is not significant at 5 percent since the p-value of the coefficient i.e. 0.816 is higher than 5 percent. The result contradicts the finding of Tadiyos (2018) who found that GDP have a negative and significant effect on lending rate.

The effect analysis through regression analysis found that the beta coefficient of bank size is negative ($\beta = -1.462$) showing that there is negative effect of total assets of banks on lending interest rate, meaning that if total assets of banks increases by 1 percent lending interest rate decreases by 1.462 percent and the negative effect of bank size on lending interest rate is significant at 5 percent level of significance since p-value i.e. 0.048 is less than 5 percent level of significance. As the total assets of banks increases the competitiveness of the banks also increases which leads to contribute to reducing the lending interest rate as stated by Al-Qudah (2021).

Similarly, the beta coefficient of deposit interest rate is positive ($\beta = 0.782$) showing that there is positive effect of deposit interest rate on lending interest rate, meaning that if deposit interest rate increases by 1 percent lending interest rate increases by 0.782 percent and the positive effect of deposit interest rate on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.000 is less than 1 percent level of significance. Since the deposit interest rate goes in the same direction as stated by Kaymaz and Kaymaz (2011) and Al-Qudah (2021) so to reduce the lending interest rate banks should decrease the deposit interest rates.

Likewise, the beta coefficient of liquidity ratio is positive ($\beta = 0.015$) showing that there is positive effect of liquidity ratio on lending interest rate, meaning that if liquidity ratio increases by 1 percent lending interest rate increases by 0.015 percent and the positive effect of liquidity ratio on lending interest rate is not significant at 5 percent level of significance since p-value i.e. 0.491 is higher than 5 percent level of significance. The result is consistent with the finding of Ali et al. (2016) who stated that higher liquidity of the banks increases the financial strength of the banks and can increase lending interest rate of the banks. But Al-Qudah (2021) has found that liquidity ratio have negative effect on lending interest rate of the banks.

Similarly, the beta coefficient of operating expenses ratio is positive ($\beta = 0.201$) showing that there is positive effect of operating expenses ratio on lending interest rate, meaning that if operating expenses ratio increases by 1 percent lending interest rate increases by 0.201 percent and the positive effect of operating expenses ratio on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.008 is less than 1 percent level of significance. The result is consistent with the finding of Bhattarai (2015) and Motaze (2022), who have found that bank's increases the lending interest rate to cover the increased operating expenses of the banks.

The beta coefficient of return on assets is positive ($\beta = 1.727$) showing that there is positive effect of return on assets on lending interest rate, meaning that if return on assets increases by 1 percent lending interest rate increases by 1.727 percent and the positive effect of return on assets on lending interest rate is significant at 1 percent level of significance since p-value i.e. 0.000 is less than 1 percent level of significance. The result is consistent with the finding of Bhattarai (2015) and opposite with the finding of

Al-Qudah (2021). It can be said that profitability of the banks increases with earning of the banks and earnings increases when there is higher lending interest rate in the banks since interest income is the major earning source of the banks.

The beta coefficient of inflation rate is negative ($\beta = -0.123$) showing that there is negative effect of inflation rate on lending interest rate, meaning that if inflation rate increases by 1 percent lending interest rate decreases by 0.123 percent and the negative effect of inflation rate on lending interest rate is not significant at 5 percent level of significance since p-value i.e. 0.153 is higher than 5 percent level of significance. This result is not consistent with Ali (2021) who revealed the positive effect of inflation rate on lending interest rate of the banks. The countries with high inflation rate lead to use of funds in unproductive markets. This adverse suggests that inflation reduces banks' lending and as a result when inflation increase lending rates becomes decline.

On the other hand, the beta coefficient of GDP growth rate is negative ($\beta = -0.106$) showing that there is negative effect of inflation rate on lending interest rate. The result is consistent with the finding of Tadiyos (2018) who found that GDP have a negative and significant effect on lending rate. If GDP growth rate increases by 1 percent lending interest rate decreases by 0.107 percent and the negative effect of GDP growth rate on lending interest rate is significant at 5 percent level of significance since p-value i.e. 0.035 is less than 5 percent level of significance.

CHAPTER- V

SUMMARY AND CONCLUSION

This chapter includes the summary of the study, conclude the findings of study and suggest the implications of the study for the further study to make more extensive study in the same topic.

5.1 Summary

Banks receive deposits from customers in little to large amounts, which are then given to borrowers in the form of loan advances. Within the financial business, lending is seen as the primary function for using cash. Since loans provide the majority of banks' gross earnings, managing loan portfolios has a significant impact on banks' profitability. One of the key elements in the growth of banks and the financial sector overall is thought to be interest rates. One of the key words in the loan decision-making process used by commercial banks is interest rate. Commercial banks are autonomous companies that choose their own lending interest rates. The focus of this study is to examine the determinants of lending interest rate of Nepalese commercial banks taking ten commercial banks as sample organization. This study also attempts to analysis the bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate, GDP growth rate as the determinants of lending interest rate of Nepalese commercial banks. In this regard, researcher from this study aims to find out the factors that determines the lending interest rates of Nepalese commercial banks.

The main objective of this study is to identify the determinants of lending interest rates of Nepalese commercial banks. The specific objective are to analyze position of commercial banks in term of bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets and lending interest rates in Nepal and to find out the impact of bank size, deposit interest rate, liquidity ratio, operating expenses ratio, return on assets, inflation rate, GDP growth rate on lending interest rates of Nepalese commercial banks. To analyze the data combination of descriptive and causal research design were used in this study and interpretation of finding with collecting data. Descriptive research design is used to analyze the situation of study variables over the study period in the banks and compare the position of the sample banks. And causal

research design tries to fetch out the relationship among the variables and the effect of different variables on lending interest rates of the banks through correlation and regression analysis. The data analysis in this study is done with the help of SPSS software for descriptive analysis, correlation analysis and regression analysis.

There are 20 commercial banks operating in Nepal during the study period which is the population for the study and among them six commercial banks are selected as sample for the study using convenient sampling method since the availability of the data of the banks are easy to excess. The sample banks selected for the study are; EBL, HBL, NSBL, SCBNL, NABIL and NMB. For this study only secondary data are used and the data are collected mainly from published annual report of the sample commercial banks collected form the authorized websites of the banks. The data of the study covers ten years from year 2012/13 to 2021/22.

The data analysis found that there is quite consistent growth in total assets of the banks during the study period. There is quite high variation in comparison to the mean of the deposit interest rate of the banks. Banks are secured from current liquidity crisis for the regular transaction but there is quite high variation in liquidity ratio of the banks. There is higher variation in operating expenses of the banks and operating expenses decreases the net earnings of the bank so banks need to manage operating expenses to enhance earnings of the banks. There is higher variation in liquidity ratio and operating expenses ratio of the banks during the study period and both liquidity and operating expenses contribute to the decrease earnings so banks should aware on managing liquidity and operating expenses in coming years. The wide range of inflation rate indicates that there is higher variability in the inflation rate in Nepal during the study period. There is higher variability in the GDP growth rate in Nepal during the study period. Likewise, during the study period there is consistent lending interest rate in sample banks.

The relationship analysis found that lending interest rate has positive relation with bank size, deposit interest rate, operating expenses ratio, return on assets and GDP growth rate but liquidity and inflation rate have negative relation with lending interest rate of the banks.

5.2 Conclusion

The descriptive summary of variables used in the study conclude that banks have consistent growth during the study period. Banks need to manage operating expenses to enhance earnings of the banks. Both liquidity and operating expenses contribute to the decrease earnings so banks should aware on managing liquidity and operating expenses in coming years. Likewise, during the study period there is consistent lending interest rate in sample banks. The inflation rate seem to be in control in comparison to earlier period. The economic instability in the country increases the inflation rate in the recent period. There is higher variability in the GDP growth rate in Nepal during the study period.

The relationship analysis conclude that correlation of lending interest rate is positive with bank size. On the other hand, there is positive relation between lending interest rate with deposit interest rate of the banks. There is negative relation between liquidity and lending interest rate. Similarly, there is positive relation between lending interest rate with operating expenses ratio of the banks. Likewise, there is positive relation between lending interest rate with return on assets of the banks. In contrast, there is negative relation between lending interest rate with inflation rate of the banks. There is positive relation between GDP growth rate and lending interest rate of the banks. The results showed that the operating expenses ratio has a positive relationship with the lending interest rate, this means that the banks that have high operating expenses have high lending interest rate. The growth of banks in term of assets has negative effect on lending interest rate, concluding that increasing bank size increases the competitive environment for the banks which negatively effect on lending interest rate of the banks.

The regression analysis conclude that the regression model is significant and can be used to predict lending interest rate, but there is still some unexplained variation in the data. The bank size has negative effect on lending interest rate of the banks. Since the bank transfers deposit interest rates to borrowers, a rise in the deposit interest rate also raises the bank's lending interest rate. The conclusion is that greater liquidity demonstrates the banks' superior short-term financial stability, and banks may raise interest rates with this strength. Liquidity has a beneficial influence on lending interest rates. The interest rate on loans is positively impacted by return on assets, positively impacted by the ratio of operating expenditures to lending, and negatively impacted by

the rate of inflation. By growing its lending, the bank may expand its lending to offset the decrease in lending rates, which allows it to offer credit facilities at low interest rates. Since the bank transfers the inflation rate to borrowers in order to maintain the same levels of real interest it charges, the increase in inflation influences the bank's lending interest rate. The GDP growth rate has a negative impact on bank lending interest rates, indicating that the rise in interest rates in the banking sector is independent of the nation's economic expansion.

5.3 Implications

Based on the findings of the study, following implications are presented;

- Interest rates have a significant influence on the risk profile, profitability, and strategic decision-making of the banking industry. In order to survive in the dynamic interest rate environment, banks must carefully manage the interest rate risk they carry and modify their operations and strategy.
- The factors that influence interest rates have a significant impact on monetary policy, fiscal policy, inflation targeting, currency rate management, financial stability, and other aspects of economic management. When deciding on interest rates, policymakers must carefully weigh their goals against the state of the economy and be ready to modify their plans when conditions change.
- This study's theoretical implications include the necessity for politicians, investors, and economists to have this knowledge when making judgments about lending, borrowing, financial market investments, and monetary policy. This paper offers a framework for examining changes in interest rates and the wider financial and economic effects of the banking industry.
- It's crucial to remember that the link between interest rates and other variables can be complicated and change based on a number of variables, including the state of the economy and the mood of the market. Therefore, before making decisions about their investments in reaction to fluctuations in interest rates, investors should carefully consider their investment objectives, risk tolerance, and time horizon.

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DETERMINANTS OF LENDING INTEREST RATE OF NEPALESE COMMERCIAL BANKS ABSTRACT The study primarily examined the determinants of lending interest rates in Nepalese commercial banks. This study focuses on how lending interest rate is affected by deposit interest rate, lending interest rate, liquidity ratio, operating expenses ratio, profitability ratio, inflation rate and GDP growth rate. Six sample bank's ten-year data from the years 2012/13 to 2021/22 are used in this study. With the aid of descriptive and causal research designs, data analysis is carried out. The SPSS software used for data analysis when the obtained data are provided in an orderly format. It was found that lending interest rate has positive relation with bank size, deposit interest rate, operating expenses ratio, return on assets and GDP growth rate but liquidity and inflation rate have negative relation with lending interest rate of the banks.

The increase in the deposit interest rate increases the lending interest rate for the bank, since the bank transfers